STATUS OF THE PENDING CLAIMS

Claims 1-89 canceled.

90. (previously presented) A method of forming a photosensor, comprising the steps of:

providing a semiconductor substrate having a doped layer of a first conductivity type;

forming a plurality of trenches in said doped layer to define a photosensitive area, each of said plurality of trenches having a plurality of sidewalls and a bottom;

doping the sidewalls and bottom of each of said plurality of trenches to form a doped region of a second conductivity type; and

forming an insulating layer on the sides and bottom of each of said plurality of trenches over said doped region.

91. (original) The method of claim 90, wherein the photosensor is a photodiode sensor.

92. (original) The method of claim 90, further comprising a step of forming a conductive layer on substantially all of an upper surface of the insulating layer.

93. (original) The method of claim 92, wherein the photosensor is a photogate sensor.

94. (original) The method of claim 92, wherein the step of forming said conductive layer comprises a chemical vapor deposition step.

95. (original) The method of claim 92, wherein the step of forming said conductive layer comprises a sputtering step.

96. (original) The method of claim 90, wherein said insulating layer is a layer of silicon dioxide.

97. (original) The method of claim 90, wherein the first conductivity type is p-type, and the second conductivity type is n-type.

98. (original) The method of claim 90, wherein the semiconductor substrate is a silicon substrate.

99. (original) The method of claim 90, wherein the step of forming a plurality of trenches comprises a reactive ion etching process.

100. (original) The method of claim 90, wherein the step of forming a plurality of trenches comprises forming two trenches.

101. (original) The method of claim 90, wherein the doping step comprises ion implantation.

102. (original) The method of claim 101, wherein the doping step comprises multiple angled ion implantation.

103. (original) The method of claim 102, wherein the multiple angled ion implantation comprises four orthogonal angled implants at a dose of 1×10^{12} to 1×10^{16} ions/cm^2, wherein a resist is placed on top of the substrate while implanting, and wherein the angle of implantation for each angled implant is greater than θ_C, where $\tan \theta_C = [(t + d)/(w)]$, where t is the thickness of the resist, d is the depth of said plurality of trenches, and w is the width of said plurality of trenches.

104. (original) The method of claim 103, wherein the dose of each implant is 1×10^{13} to 1×10^{15} ions/cm^2.

105. (original) The method of claim 103, wherein the dose of each implant is 5×10^{13} ions/cm^2.

106. (withdrawn) A method of forming a photosensor, comprising the steps of:

providing a semiconductor substrate having a doped layer of a first conductivity type;

forming a doped region of a second conductivity type in the doped layer;

forming a plurality of trenches in said doped region so that the sides and bottom of each of said plurality of trenches are of the second conductivity type; and

forming an insulating layer on the sides and bottom of each of said plurality of trenches.

107. (withdrawn) The method of claim 106, wherein the photosensor is a photodiode sensor.

108. (withdrawn) The method of claim 106, further comprising forming a conductive layer on the sides and bottom of each of said plurality of trenches, and wherein the photosensor is a photogate sensor.

109. (withdrawn) The method of claim 106, wherein the first conductivity type is p-type, and the second conductivity type is n-type.

110. (withdrawn) The method of claim 106, wherein the step of forming a plurality of trenches comprises a reactive ion etching process.

111. (withdrawn) The method of claim 106, wherein the doping step comprises ion implantation.

112. (previously presented) A method of forming a photosensor, comprising the steps of:

providing a semiconductor substrate having a doped region of a first conductivity type;

forming a plurality of trenches in said doped region to define a photosensitive area, each of said plurality of trenches having a plurality of sidewalls and a bottom doped to a second conductivity type; and

forming an insulating layer on the sides and bottom of each of said plurality of trenches.

113. (original) The method of claim 112, wherein the photosensor is a photodiode sensor.

114. (original) The method of claim 112, further comprising forming a conductive layer on the sides and bottom of each of said plurality of trenches, and wherein the photosensor is a photogate sensor.

115. (original) The method of claim 112, wherein the first conductivity type is p-type, and the second conductivity type is n-type.

116. (original) The method of claim 112, wherein the step of forming a plurality of trenches comprises a reactive ion etching process.